

REMARKS

Claims 1-18 are pending in the application.

Claims 1 and 11 have been amended in order to more particularly point out, and distinctly claim the subject matter to which the Applicants regard as their invention. It is believed that this Amendment is fully responsive to the Office Action dated **July 12, 2002**.

Objection to the Drawings

The Examiner has objected to Figs. 1-7b, indicating that Figs. 1-7b should be labeled as required by 37 CFR §1.83(a). Applicants respectfully traverses the Examiner's grounds for objection. 37 CFR §1.83 (a) states that the drawings show every feature of the invention specified in the claims. Further, when conventional features are disclosed and not required for proper understanding of the invention, they should be featured as a labeled rectangular box.

In the case of figures 1-7b, all items illustrated have associated reference numerals with lead lines as required by MPEP §608.02 (p) and (q) with no further labeling being required. Therefore, Applicants respectfully traverse the Examiner's objection to the drawings.

Claims Rejections under 35 USC §102

Claims 1-3, 7-13, 15-16 and 18 are rejected under 35 USC §102(b) as being anticipated by Morita (U.S. Patent No. 6,232,623 B1).

Morita describes a semi-conductor laser device utilizing nitride-based compounds such as gallium nitride. Specifically, as illustrated in figure 1, this semi-conductor laser device has an

AlGaN cladding layer (10), a GaN contact layer (11), and an insulating film (13) covering the AlGaN cladding layer (10) and GaN contact layer (11) with the exception of an opening where the GaN contact layer (11) exists. The shape of these respective layers forms a ridge (12). On top of the GaN layer (11) an electrode (14) is provided.

The present invention provides for an AlGaN cladding layer (7), a first GaN layer (8), covered by a current blocking layer (9). An opening (W_1) is provided in the current blocking layer (9) which is significantly smaller than the width (W_2) of the first GaN layer (8). Further, a second GaN layer (10) is provided on top of the current blocking layer (9).

The Examiner's rejections of independent claims 1 and 11 and the claims dependent thereon is respectfully traversed. Morita does not disclose or suggest an opening (W_1) provided in the current blocking layer (9) that is significantly smaller than the width (W_2) of the first GaN layer (8). Further, Morita does not disclose or suggest a second GaN layer (10) provided on top of the current blocking layer (9).

Claims 1 and 11 patentably distinguished over the prior art relied upon, as exemplified by the claims 1, by reciting

"A semiconductor laser device comprising: a first nitride based semiconductor layer including a light emitting layer and containing at least one of indium, gallium, aluminum, boron and thallium; a ridge portion formed in a region having a predetermined width on said first nitride based semiconductor layer, having an upper surface having a first width and a side surface, and containing at least one of indium, gallium, aluminum, boron and thallium; a current blocking layer formed on said first nitride based semiconductor layer and on a region from the side surface of said ridge portion to the upper surface thereof, and having an opening having a second width smaller than said first width on the upper surface of said ridge portion; and a second nitride based semiconductor layer formed on said ridge portion inside

said opening and containing at least one of indium, gallium, aluminum, boron and thallium." (Emphasis Added)

Therefore, withdrawal of the rejections of Claims 1-3, 7-13, 15-16 and 18 under 35 USC §102(b) as being anticipated by Morita (U.S. Patent No. 6,232,623 B1) is respectfully requested.

Claim Rejections under 35 USC §103

Claims 4, 6 and 17 are rejected under 35 USC §103(a) as being unpatentable over Morita in view of Kunisato et al. (U.S. Patent No. 6,162,656).

Kunisato et al. describes a method of manufacturing a light-emitting device such as a semi-conductor laser in which indium issues in a vapor phase growth method for active layers. It is further disclosed that the current blocking layer (40) may be composed of an aluminum and gallium nitride compound.

The Examiner has supplied no reason to modify Kunisato et al. and is effectively asserting that one of ordinary skill in the art would do so simply because it is disclosed. As indicated in MPEP § 2143.01, this argument is inadequate to establishing motivation to modify a reference. Simply being able to modify the primary reference is inadequate motivation to do so as stated in MPEP § 2143.01. Therefore, the Examiner's motivation to combine the descriptions of Morita and the Kunisato et al. is respectfully traversed.

Therefore, withdrawal of the rejection of Claims 4, 6 and 17 under 35 USC §103(a) as being unpatentable over Morita in view of Kunisato et al. (U.S. Patent No. 6,162,656) is respectfully requested.

Claims 5 and 7 are rejected under 35 USC §103(a) as being unpatentable over Morita.

The Examiner argues that discovering an optimum value of a "result effect variable" involves only routine skill in the art.

Morita does not disclose an opening (W_1) provided in the current blocking layer (9) that is significantly smaller than the width (W_2) of the first GaN layer (8), the allegation of discovering an optimum value thereof is irrelevant. Therefore, the Examiner's grounds of rejection is respectfully traversed.

Therefore, withdrawal of the rejection of Claims 5 and 7 under 35 USC §103(a) as being unpatentable over Morita is respectfully requested.

Conclusion

In view of the aforementioned amendments and accompanying remarks, claims 1 and 11, as amended, are in condition for allowance, which action, at an early date, is requested.

If, for any reason, it is felt that this application is not now in condition for allowance, the Examiner is requested to contact Applicant's undersigned attorney at the telephone number indicated below to arrange for an interview to expedite the disposition of this case.

Attached hereto is a marked-up version of the changes made to the claims by the current amendment. The attached page is captioned "**Version with markings to show changes made.**"

In the event that this paper is not timely filed, Applicants respectfully petition for an appropriate extension of time. Please charge any fees for such an extension of time and any other fees which may be due with respect to this paper, to Deposit Account No. 01-2340.

Respectfully submitted,

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PATENT TRADEMARK OFFICE

Enclosures: Version with markings to show changes made

H:\HOME\AWEAVER\GSTEVENS\99\990073\12-12-02 amend

IN THE CLAIMS:

Please amend claims 1 and 11 as follows:

1. (Amended) A semiconductor laser device comprising:

a first nitride based semiconductor layer including a light emitting layer and containing at least one of indium, gallium, aluminum, boron and thallium;

a ridge portion formed in a region having a predetermined width on said first nitride based semiconductor layer, having an upper surface having a first width and a side surface, and containing at least one of indium, gallium, aluminum, boron and thallium;

a current blocking layer formed on said first nitride based semiconductor layer and on a region from the side surface of said ridge portion to the upper surface thereof, and having an opening having a second width smaller than said first width on the upper surface of said ridge portion; and

a second nitride based semiconductor layer formed on said ridge portion inside said opening and containing at least one of indium, gallium, aluminum, boron and thallium.

11. (Amended) A method of fabricating a semiconductor laser device, comprising the steps of:

forming a first nitride based semiconductor layer including a light emitting layer and containing at least one of indium, gallium, aluminum, boron and thallium;

forming a ridge portion having an upper surface having a first width and a side surface,
and containing at least one of indium, gallium, aluminum, boron and thallium in a region having
a predetermined width on said first nitride based semiconductor layer;

forming on a region from the side surface of said ridge portion to the upper surface
thereof a current blocking layer having an opening having a second width smaller than said first
width on the upper surface of said ridge portion; and

forming a second nitride based semiconductor layer containing at least one of indium,
gallium, aluminum, boron and thallium on said ridge portion inside said opening.